What is claimed is:

1. A method for reconfiguring the allocation of bandwidth used at transmit and receive nodes of a synchronous optical data communications network wherein data frames are transmitted from said transmit node and received at said receive node and said transmit node comprises a mapper/aggregator, a first bandwidth configuration memory associated with said mapper/aggregator and a transmit framer and said receive node comprises a demapper/deaggregator, a second bandwidth configuration memory associated with said demapper/deaggregator and a receive framer, said method comprising:

(a) providing first and second memory banks to said first and second bandwidth configuration memory, whereby said first memory bank of said first bandwidth configuration memory comprises current bandwidth allocation mapping information used by said mapper/aggregator and said first memory bank of said second bandwidth configuration memory comprises current bandwidth allocation mapping information used by said demapper/deaggregator;

(b) providing updated bandwidth allocation mapping information to said second memory banks;

(c) generating a bandwidth reconfiguration update request;

(d) generating a reconfiguration flag at said transmit node in response to said update request;

(e) transmitting said reconfiguration flag from said transmit node to said receive node;

(f) detecting said reconfiguration flag at said receive node;

(g) selecting said updated bandwidth allocation mapping information of said first bandwidth configuration memory's second memory bank for use by said mapper/aggregator in response to said generation of said reconfiguration flag; and,

(h) selecting said updated bandwidth allocation mapping information of said second bandwidth configuration memory's second memory bank for use by said demapper/deaggregator in response to said detection of said reconfiguration flag.

2. A method according to claim 1 and further comprising signalling the completion of said generation of said flag and swapping said first and second memory banks of said first bandwidth configuration memory in response to said generation completion signalling.

3. A method according to claim 2 and further comprising signalling the detection of said reconfiguration flag and swapping said first and second memory banks of said second bandwidth configuration memory in response to said detection signalling.

4. A method according to claim 3 and further comprising transmitting said reconfiguration flag within a path overhead channel of said network, whereby said flag comprises a plurality of codewords.

5. A method according to claim 4 whereby the Hamming distance between said codewords is sufficiently large that said reconfiguration flag provides single-bit fault tolerance.

6. A method according to claim 5 whereby said reconfiguration flag comprises four codewords.

7. A method according to claim 6 whereby detection of said codewords is single codeword fault tolerant.

8. A system for in-service reconfiguration of bandwidth in a synchronous

optical data communications network wherein data frames are transmitted from a transmit node and received at a receive node, said transmit node comprising a mapper/aggregator, a first bandwidth configuration memory associated with said mapper/aggregator and a transmit framer, said receive node comprising a demapper/deaggregator, a second bandwidth configuration memory associated with said demapper/deaggregator and a receive framer, said bandwidth reconfiguration system operating to reconfigure the allocation of bandwidth used at said nodes in response to an update request generated within said network and comprising:

(a) a reconfiguration flag generator at said transmit node configured for generating a reconfiguration flag in response to detection of said update request, said reconfiguration flag configured for transmission from said transmit node to said receive node; and,

(b) a reconfiguration flag detector at said receive node configured for detecting said reconfiguration flag;

wherein each said first and second bandwidth configuration memory comprises first and second memory banks, said first memory bank of said first bandwidth configuration memory comprising current bandwidth allocation mapping information used by said mapper/aggregator and said first memory bank of said second bandwidth configuration memory comprising current bandwidth allocation mapping information used by said demapper/deaggregator, said second memory banks configured for receiving updated bandwidth allocation mapping information prior to said reconfiguration, wherein said updated bandwidth allocation mapping information of said first bandwidth configuration memory's second memory bank is selected for use by said mapper/aggregator in response to completion of said reconfiguration flag generated by said generator and said updated bandwidth allocation mapping information of said second bandwidth configuration memory's second memory bank is selected for use by said demapper/deaggregator in response to detection of said reconfiguration flag by said detector.

9. A system according to claim 8 wherein said reconfiguration flag generator is configured for signalling the completion of generating said flag and further comprising a memory bank swapping component at said transmit node configured for swapping said first and second memory banks of said first bandwidth configuration memory in response to said signalling by said generator.

10. A system according to claim 9 wherein said reconfiguration flag detector is configured for signalling the detection of said reconfiguration flag and further comprising a memory bank swapping component at said receive node configured for swapping said first and second memory banks of said second bandwidth configuration memory in response to said signalling by said detector.

11. A system according to claim 10 wherein said reconfiguration flag is transmitted within a path overhead channel of said network and comprises a plurality of codewords.

12. A system according to claim 11 wherein said reconfiguration flag detector comprises a finite state machine.

13. A system according to claim 12 wherein the Hamming distance between said codewords is sufficiently large that said reconfiguration flag provides single-bit fault tolerance.

14. A system according to claim 13 wherein said reconfiguration flag comprises four codewords.

15. A system according to claim 14 wherein detection of said codewords by said finite state machine is single codeword fault tolerant.